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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,461	11/26/2003	Eigo Nakagawa	117863	2767

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EXAMINER

HOLLINGTON, JERMELE M

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/721,461	Applicant(s) NAKAGAWA ET AL.	
	Examiner Jermele M. Hollington	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 25-29 and 33-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-11, 14-19 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 4-6, 20 and 30-32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed August 29, 2006, with respect to the rejection(s) of claim(s) 1-24 and 30-32 under 35 USC 102 and 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yamashita (6459272).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 8-11 and 14-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamashita (6459272).

Regarding claim 1, Yamashita discloses [see Figs. 1 and 4] a circuit board inspection device for inspecting operation of a circuit board (circuit board 1) having a predetermined part or wire (wiring 21) formed therein, comprising: a supporting substrate (core 41) disposed substantially in parallel with a parts mounting surface (wiring pattern 2) of the circuit board (1), the supporting substrate (41) being near the circuit board (1) at least when in use; and a signal change detection unit (coil 42) disposed in a position of the supporting substrate (41) directly opposite to the part (2) or wire (21) of the circuit board (1), with the supporting substrate (41) being disposed substantially in parallel with the circuit board (1).

Regarding claim 2, Yamashita discloses the signal change detection unit (42) includes a coil for generating an induction voltage in accordance with a magnetic field generated from a current flowing through the part (2) [via AC current generation circuit 5 see also col. 6, lines 1-29].

Regarding claim 3, Yamashita discloses the signal change detection unit (42) includes an impedance component for generating electrical potential information in accordance with a change of a signal flowing through the wire (21) [via AC current generation circuit 5 see also col. 6, lines 1-29].

Regarding claim 8, Yamashita discloses the coil (42) is wound around the supporting substrate (41) correspondingly to an outer circumference of the circuit board (1).

Regarding claim 9, Yamashita discloses the coil (42) is wound around the supporting substrate (41) correspondingly to an outer circumference of the part (2).

Regarding claim 10, Yamashita discloses the coil (42) is wound around the supporting substrate (41) correspondingly to a position of a terminal (common wiring 3) of the part (2).

Regarding claim 11, Yamashita discloses the coil (42) is wound around the supporting substrate (41) correspondingly to a position of an input/output connector (ball grids 22) of the circuit board (1).

Regarding claims 14-16, Yamashita discloses the impedance component (42) is made of a capacitive component, an inductive component or resistive component.

Regarding claim 17, Yamashita discloses the impedance component (42) is disposed on the supporting substrate (41) so as to substantially cross a direction of the wire (21) of the circuit board (1) at right angles.

Regarding claim 18, Yamashita discloses the signal change detection unit (42) is disposed astride a plurality of layers of the support substrate (41).

Regarding claim 19, Yamashita discloses the coil (42) is formed with an equal number of turns for each of a plurality of layers of the supporting substrate (41).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 7, 12-13 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (6459272).

Regarding claim 7, Yamashita discloses the supporting substrate (41) disposed substantially in parallel with the circuit board (1). However, he does not disclosed the substrate is provided to be assemblable into a box. It is well known to make the substrate to be assemblable into a box where needed (see MPEP 2144.04 *In re Seid*, 161 F.2d 229, 73 USPQ 431 (CCPA

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1947)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have a box to assemble for a substrate since the court found that matters relating to ornamentation only which have no mechanical function cannot be relied upon to patentably distinguish the claimed invention from the prior art.

Regarding claim 12, Yamashita discloses the circuit board (1), and the coil (42) is wound around the supporting substrate (41) correspondingly to the circuit board (1). However, he does not disclose more than one circuit board as claimed. It is well known in the art to have more than one circuit board where needed (see MPEP 2144.04; *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have more than one circuit board since the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Regarding claim 13, Yamashita discloses the coil (42) is wound around the supporting substrate (41) correspondingly to an outer circumference of a circuit board (1) group. However, he does not disclose more than one circuit board as claimed. It is well known in the art to have more than one circuit board where needed (see MPEP 2144.04; *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have more than one circuit board since the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Regarding claim 21, Yamashita discloses the signal change detection unit (42) is provided, and one-side terminals of the signal change detection unit (42) are connected in

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common (via front end surface 411). However, he does not disclose more than one signal change detection unit as claimed. It is well known in the art to have more than one circuit board where needed (see MPEP 2144.04; *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have more than one detection unit since the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Regarding claim 22, Yamashita discloses a common terminal (common wiring 3) in which the one-side terminal (411) of the signal change detection unit (42) is connected in common is grounded outside the supporting substrate (41).

Regarding claim 23, Yamashita discloses the one-side terminal (411) of the signal change detection unit (41) is connected in common in an end portion of the supporting substrate (41).

Regarding claim 24, Yamashita discloses the signal change detection unit (42) is provided, and terminals of the signal change detection unit (42) is led into the supporting substrate (41) closely to one another and substantially in parallel with one another. However, he does not disclose more than one signal change detection unit as claimed. It is well known in the art to have more than one circuit board where needed (see MPEP 2144.04; *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have more than one detection unit since the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 for details.
8. Claims 4-6, 20 and 30-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: regarding claims 4-6, the primary reason for the allowance of the claims is due to the supporting substrate is a thin flexible substrate, having the same dimensions as the circuit board and having a hole for avoiding the support substrate to come into contact with the circuit board.

Regarding claim 20, the primary reason for the allowance of the claim is due to the capacitive component is made of electrodes provided in two of a plurality of layers of the supporting substrate.

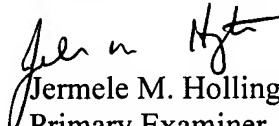
Regarding claim 30, the primary reason for the allowance of the claim is due to the inspection device having a signal check portion for comparing a signal detected by the signal change detection unit and a diagnosis portion for performing diagnosis as to whether the portion to be inspected operates normally or not.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:00 EST) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on (571) 272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jermele M. Hollington
Primary Examiner
Art Unit 2829

JMH
September 19, 2006